

### **REMARKS**

This Amendment responds to the non-final Office Action mailed March 29, 2010. Claims 1-20 were pending for examination in the application. Claim 1 has been amended and claim 4 has been canceled. No new claims have been added. No new matter is added by way of the claim amendment. Thus, claims 1-3 and 5-20 are now pending for reconsideration.

#### ***Summary of the Office Action***

Claim 1 stands rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 6,464,867 to Morita *et al.* (“Morita”). Claims 2-20 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Morita in view of Japanese Patent No. 2002-210494 to Kazuki *et al.* (“Kazuki”).

#### ***Response to rejections under 35 U.S.C. § 102(b)***

In response to the Office Action, claim 1 is amended to recite “wherein a ratio of the catalyst supports to the anion exchange resins is 3 to 20 weight percent.” Support for this amendment is provided in at least paragraph [0018] of the specification. Applicants submit that this feature is not taught by Morita.

Paragraph [0016] of the instant application states that the “catalyst mixture tower holds *catalyst supports each of which has a catalyst* carried on a support and anion exchange resins in the same tower.” (Emphasis added). That is, the catalyst mixed tower of claim 1 explicitly includes a distinct catalyst support (having the catalyst) and a distinct anion exchange resin.

Having a distinct catalyst support and a distinct anion exchange resin provides advantages that are discussed in the specification. The catalyst mixed tower, located downstream of the ultraviolet oxidation equipment, has two functions. The first function, as discussed in paragraph [0031], is the decomposition of hydrogen peroxide by the catalyst supports in the catalyst mixed tower. The second function, as discussed in paragraph [0029], is the absorption and removal with the anion exchange resins of decomposition products generated

by the oxidative degradation of organic compounds. The ultrapure water production plant of the instant application can produce highly purified ultrapure water even if the load caused by negative ion ingredients is high, as discussed in paragraph [0029]. However, as discussed in paragraph [0030], hydrogen peroxide generated in the upstream ultraviolet oxidation equipment is known to decompose anion exchange resins. By having a separate catalyst support bearing the catalyst as recited in claim 1, “hydrogen peroxide etc. is decomposed by reacting preferentially with a catalyst carried in the support and the anion exchange resins are inhibited from being decomposed.” Specification paragraph [0031].

In contrast, Morita consistently teaches supporting the catalyst with the anion exchange resin. Specifically, Morita teaches: “As the palladium catalyst, palladium metal, palladium oxides, palladium hydrides and catalysts obtaining supporting palladium on a support such 65 as an ion exchange resin” (Morita, column 6, lines 2-65); and “Among the supported palladium catalysts, supported palladium catalysts obtained by supporting palladium on anion exchange resins are preferable” (*Id.* at column 7, lines 17-20). In such a configuration, the anion exchange resin may be exposed to hydrogen peroxide and thereby decomposed. Morita fails to disclose an anion exchange resin that does not support palladium catalyst in the catalytic reaction portion 29. Anion exchange resins that support the palladium catalysts as taught Morita lack sufficient ability to absorb and remove decomposition products generated by the oxidative degradation of organic compounds when the load caused by negative ion ingredients is high.

Differences between claim 1 and the teachings in Morita are summarized in Table 1 below:

Table 1.

	X	Y
Claim 1	the catalyst support (catalytic metal + support)	anion exchange resin (to absorb and remove the decomposition product of the organic compound)
Morita	catalytic metal	support (anion exchange resin)

Further, the catalyst mixed tower has a preferred mixed ratio of catalyst support (with catalyst metal) to anion exchange resin (without catalyst metal). As recited in claim 1, “a ratio of the catalyst supports to the anion exchange resins is 3 to 20 weight percent.” Paragraph [0018] of the instant specification teaches that if the mixed ratio of the catalyst support is too small, the decomposition efficiency of hydrogen peroxide will drop. On the other hand, if the mixed ratio of the catalyst support is too much, materials which are eluted from the catalyst support itself will increase.

Morita, in contrast, discloses “When a supported palladium catalyst is used, i.e., when a catalyst obtained by supporting palladium on a support is used, it is preferable that the amount of palladium supported on the support is 0.1 to 10% by weight.” (See lines 14 – 17 of column 7). That is, Morita discloses a ratio of a catalytic metal to a support which is an anion exchange resin only. Morita simply does not teach “wherein a ratio of the catalyst supports to the anion exchange resins is 3 to 20 weight percent” as recited in amended claim 1.

Since Morita fails to disclose or teach every element of amended claim 1, Applicants respectfully submit that the claim is allowable over Morita. Accordingly, Applicants respectfully request withdrawal of the rejection of claim 1 under 35 U.S.C. § 102(b).

***Response to rejections under 35 U.S.C. § 103(a)***

In the Office Action, claims 2-20 stand rejected as being unpatentable on the basis that it would be obvious to modify the invention disclosed in Morita to provide a degasser as suggested by Kazuki in order to remove gases evolved by the ultraviolet radiation and catalyst units. Applicants respectfully traverse this rejection.

As discussed above, Morita does not disclose or teach “wherein a ratio of the catalyst supports to the anion exchange resins is 3 to 20 weight percent” as recited in amended claim 1. Applicants submit that Kazuki fails to cure this deficiency of Morita, and therefore, claims 2-20, which depend from claim 1, are patentable over the combination of Morita and Kazuki. Accordingly, Applicants respectfully request withdrawal of the rejections of claims 2-20 under 35 U.S.C. § 103(a).

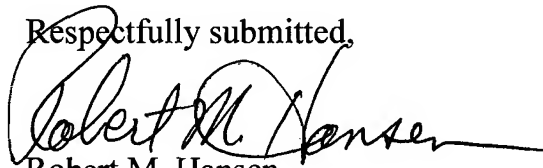
### **CONCLUSION**

In view of the foregoing amendments and remarks, Applicants respectfully submit that the present application is now in condition for allowance, and request that a notice of allowance be forthcoming. The Examiner is invited to contact the undersigned for any reason related to this case.

The Commissioner is authorized to charge any necessary fees to USPTO Deposit Account No. 18-1579.

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Respectfully submitted,



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